



Lauren

A-LINE SERIES
Model BL450A

Service Manual



FOR THE LOVE OF SEWING

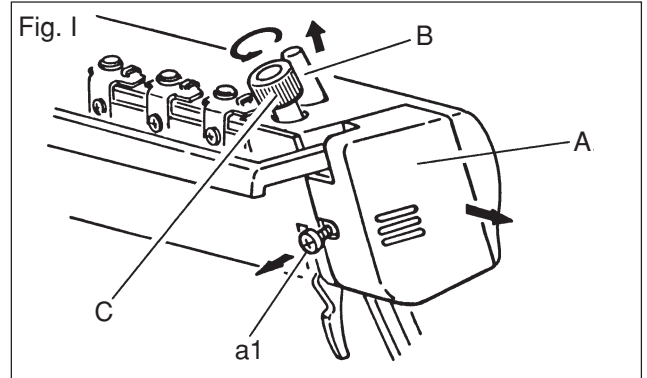
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• How to remove the exterior parts

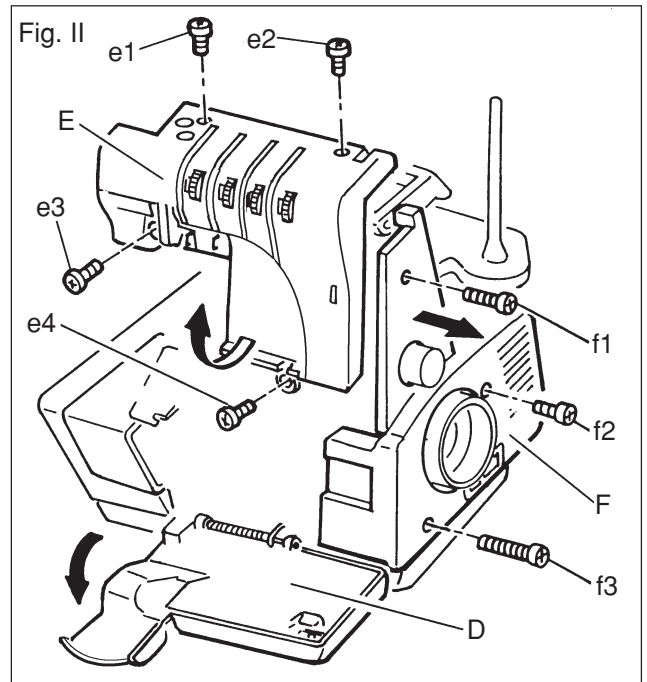
a) Light cover

Loosen the screw (a1) behind the light cover (A).
Remove the light cover. (Fig. I)



b) Face Plate

Remove the light cover.
Remove the needle bar cap (B) by pulling it upward. Turn the presser bar bush (C) to counter-clockwise and remove it. (Fig. I)
Raise the needle bar to its highest point by turning the hand wheel towards you. Open the front cover (D).
Remove the 4-screws (e1-4) from face plate (E).
Lift up the face plate towards you (Fig. II)

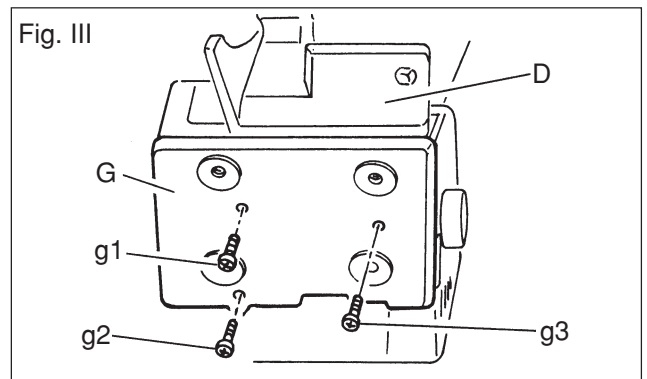


c) Belt Cover

Remove the face plate (E).
Remove the 3-screws (f1-3) from the belt cover (F). Remove the belt cover. (Fig. II)

d) Base

Tilt the machine backward and remove the 3-screws (g1-3) on the bottom of machine. Remove the base (G) with opening the front cover (D). (Fig. III)



• Checking and adjustment

1. NEEDLE BAR, NEEDLE GUARD

a) Height and direction of the needle bar

Before you start this adjustment, see that the needle(s) should be inserted into the needle clamp correctly. (See Instruction Manual)

To check:

Turn the hand wheel towards you until the needle bar raises to its highest position.

Check that the height of right needle from the surface of throat plate should be 10.8 (+0.3, -0.1) mm as shown on Fig. 1-1.

Next, check the direction of needle bar as following.

The left and right needles should be falling into each slit of throat plate evenly as shown on Fig. 1-2.

To adjust:

Remove the light cover and light bulb.

Turn the hand wheel and lower the needle bar (A) until the needle bar clamp screw (a1) will appear. (Fig. 1-3)

Loosen the screw (a1) and adjust the height and direction of needle bar.

When correct height and direction are obtained, tighten the screw (a1) and replace the light bulb and light cover.

b) Positioning of the needle guard

The needle guard (B) is located under the throat plate.

When you start to this adjustment, the needle bar should be positioned correct height and direction.

To check:

Open the extension table. Remove the free arm cover.

Turn the hand wheel towards you until the needle comes to its lowest position.

The opening between needle and needle guard (B) should be 0.05-0.3 mm as shown on Fig. 1-4.

To adjust:

Loosen the 2 screws (b1, b2) and adjust the position correctly.

Fig. 1-1

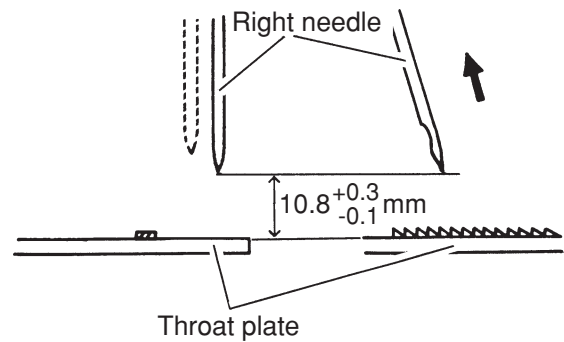


Fig. 1-2

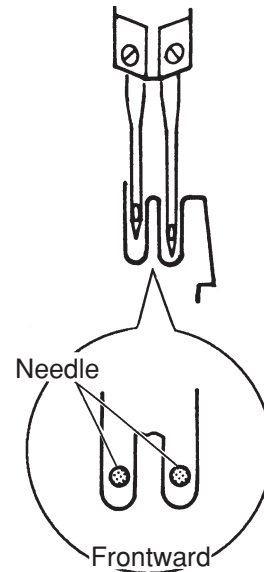


Fig. 1-3

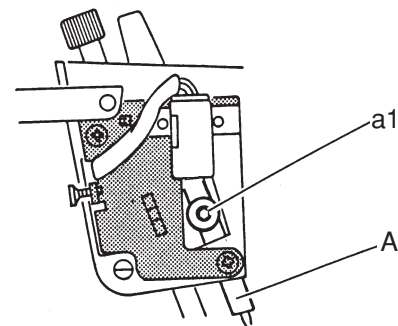
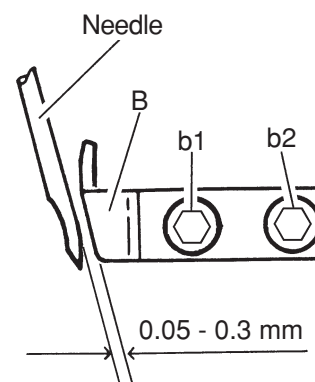
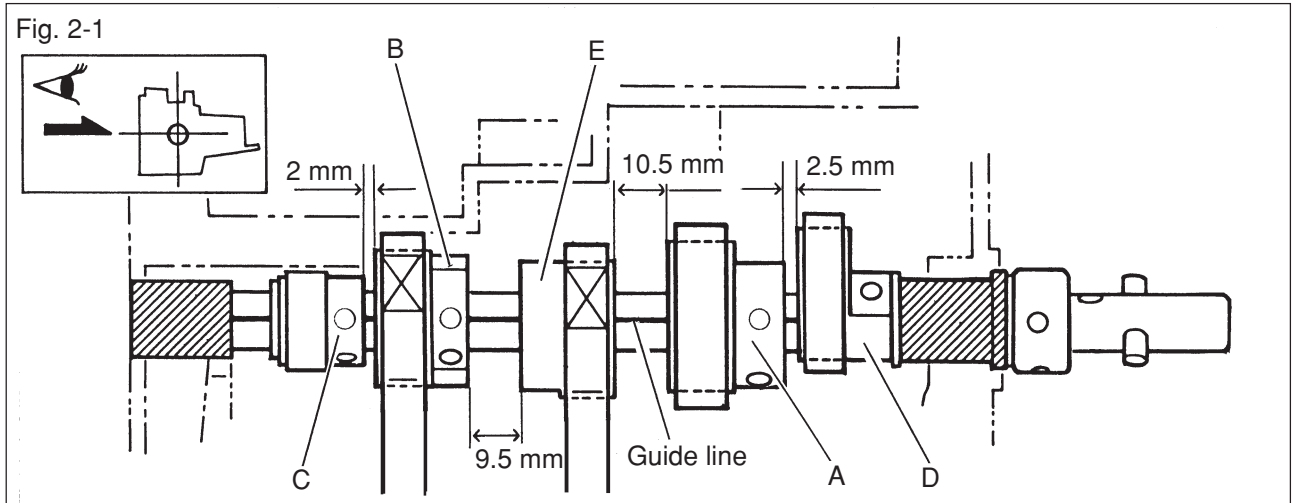


Fig. 1-4



2. POSITIONING OF THE ECCENTRIC CAMS

The positioning of the each eccentric cam on the hand wheel shaft will determine the timing of needle, loopers and feed. Check these positioning before you adjust about the upper and lower loopers or about the feed. Tilt the machine backward and remove the base when this adjustment. (Fig. 2-1)



a) Positioning of the Needle bar eccentric cam, Lower looper rod eccentric cam and Slide block eccentric cam.

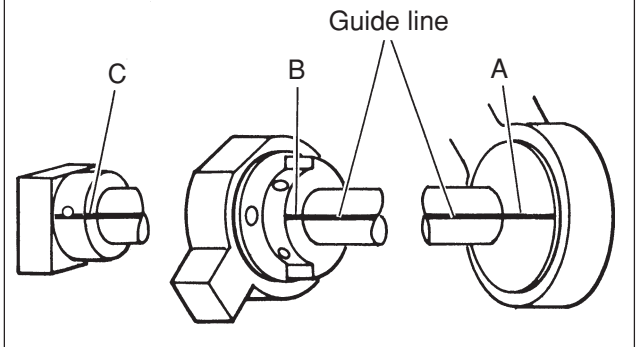
To check:

The guide lines on the Needle bar eccentric cam (A), Lower looper rod eccentric cam (B) and Slide block eccentric cam (C) should be aligned the line on the hand wheel shaft. (Fig. 2-2)

To adjust:

Loosen the 2 screws on each cam and adjust. When this adjustment, keep the openings between each cam as shown on Fig. 2-1.

Fig. 2-2



b) Positioning of the Feed rock eccentric cam.

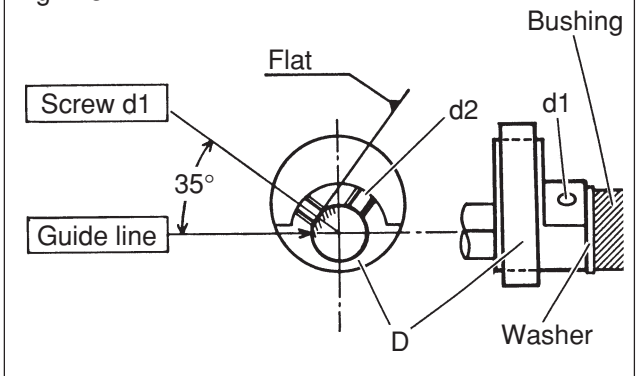
To check:

The screw (d1) on the Feed rock eccentric cam (D) should be tightening the flat side of the hand wheel shaft (35° upper from the guide line) as shown on Fig. 2-3.

To adjust:

Loosen the 2 screws (d1, d2) and adjust the correct position. Tighten the screw (d1) first, and tighten the other screw (d2). In this adjustment, do not open the space between the cam (D) and washer and bushing.

Fig. 2-3



c) Positioning of the Upper looper rod eccentric cam.

To check

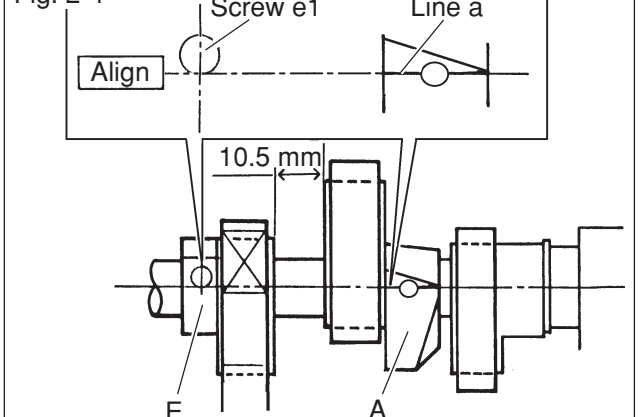
The bottom of screw hole (e1) on the Upper looper eccentric cam (E) should be tangent to the line extended from the line (a) on the Needle bar eccentric cam (A) as shown on Fig. 2-4.

To adjust:

Loosen the 2 screws on the cam (E) and adjust the correct position. Tighten the screw (e1) and tighten the other screw. In this adjustment, keep the opening between the Needle bar eccentric cam (A) and this cam (E).

The positioning of this cam (E) is temporary. For fine tuning, see the section 4-b) Timing of the upper looper.

Fig. 2-4



3. LOWER LOOPER

Before you check and adjust about the lower looper, see that the needle bar is positioned correct height and direction. (Section 1)

Checking and adjustments should be made in sequence from a) to f).

a) Radius of the lower looper

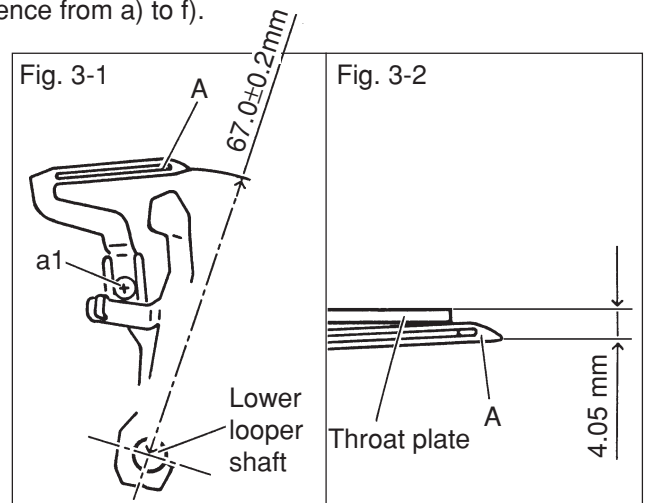
To check:

The radius between center of lower looper shaft to tip of lower looper (A) should be 67.0 (±0.2) mm as shown on Fig. 3-1.

And/or the distance between the surface of throat plate to tip of lower looper (A) should be 4.05 mm as shown on Fig. 3-2.

To adjust:

Loosen the screw (a1) and move the lower looper (A) up or down to correct position. (Fig. 3-1)



b) Timing of the lower looper

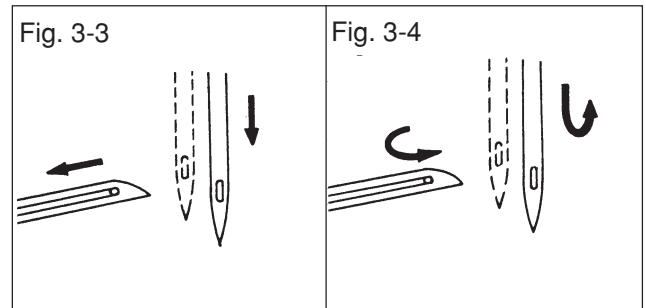
To check:

Turn the hand wheel towards you until the needle bar comes to its lowest point. At this time, the lower looper should be in extreme left side position. (Fig. 3-3)

And next, when the needle bar starts to raise from its lowest point, the lower looper should start to turn from its extreme left side position. (Fig. 3-4)

To adjust:

The timing of the lower looper is determined by the positioning of the Lower looper eccentric cam and Needle bar eccentric cam. See the section 2 "POSITIONING OF THE ECCENTRIC CAMS", if adjustment is needed.



c) Opening between the lower looper and needle

To check:

Open the extension table and remove the free arm cover. Remove the presser foot and throat plate. Turn the hand wheel towards you until the tip of lower looper crosses the needle.

At this time, the opening between the tip of lower looper (A) and needle should be 0-0.05 mm as shown on Fig. 3-5.

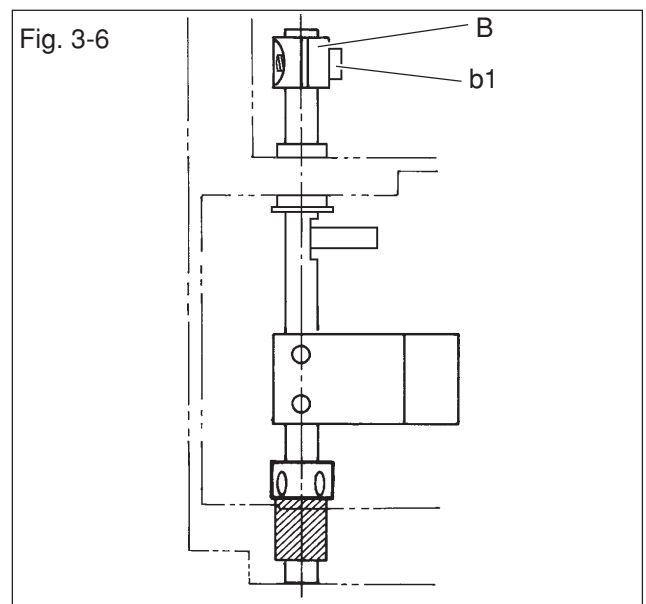
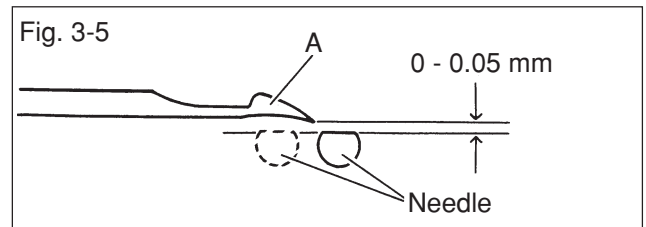
To adjust:

Tilt the machine backward and remove the base. (Fig. 3-6)

Loosen the screw (b1) tightening the lower looper shaft base (B).

Adjust the opening by sliding the lower looper shaft base. Tighten the screw (b1).

After this adjustment, check the returning point of the lower looper described as next page.



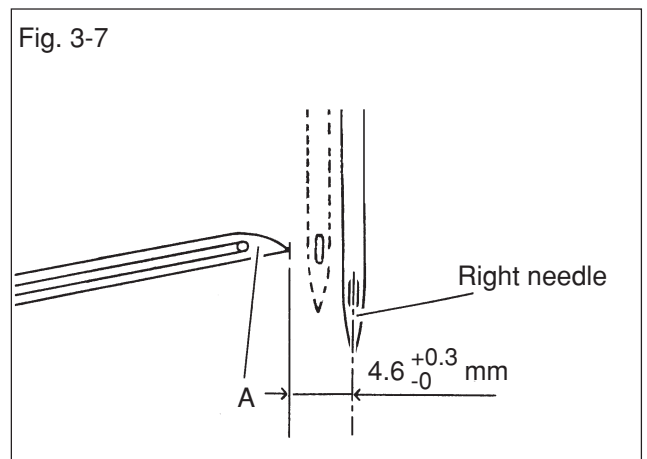
d) Returning point of the lower looper

To check:

Open the extension table and remove the free arm cover. Remove the presser foot and throat plate. Turn the hand wheel towards you until the lower looper (A) comes to its extreme left side position. In this position, check that the opening between tip of lower looper and center of right needle should be 4.6 (+0.3, -0) mm as shown on Fig. 3-7.

To adjust:

Tilt the machine backward and remove the base. (Fig. 3-6) Loosen the 2 screws (b1, b2) on the Lower looper rod arm (B). Turn the lower looper shaft (D) until correct point is obtained. Tighten the screws (b1, b2) carefully so that there is no opening between the arm (B) and bushing (E).



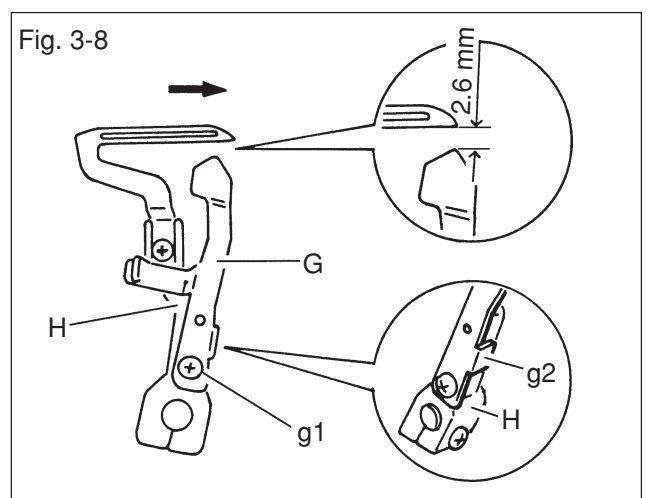
e) Positioning of the lower looper base thread guide

To check:

Open the front cover and turn the hand wheel towards you until the lower looper comes to its extreme right side position. The opening between the tip of lower looper and the top edge of the Lower looper base thread guide (G) should be 2.6 mm as shown on Fig. 3-8.

To adjust:

Loosen the screw (g1) on the base thread guide and move the guide up or down to adjust correct position. While this adjustment, the supporting plate (g2) should be touching to the side of the Lower looper base (H) always.



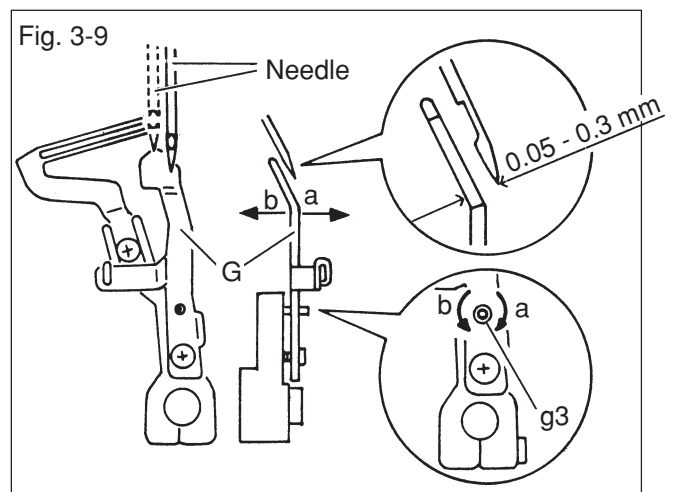
f) Opening between base thread guide and needle

To check:

Open the extension table and remove the free arm cover. Turn the hand wheel towards you until the needle bar comes to its lowest position. The opening between the Lower looper base thread guide (G) and needle should be 0.05 - 0.3 mm as shown on Fig. 3-9.

To adjust:

Open the front cover and turn the screw (g3) right or left to adjust the correct opening. (Turning the screw to the right, the opening will be smaller.)



4. UPPER LOOPER

Prior to making adjustments of the upper looper, the lower looper and needle bar must be adjusted properly. (See section 1, 3)

Check the upper looper in sequence of a) to c)

a) Returning point of the upper looper

To check:

Turn the hand wheel towards you until the upper looper comes to its extreme left side position.

In this position, check that the opening between the tip of upper looper and center of the right needle should be $6.9 (\pm 0.15)$ mm as shown on Fig. 4-1.

To adjust:

Open the front cover. (Fig. 4-2)

Loosen the screw (a1) on the Upper looper shaft base (A). Turn the Upper looper shaft base to adjust correct upper looper position.

Retighten the screw (a1) and check that the upper looper moves smoothly.

Fig. 4-1

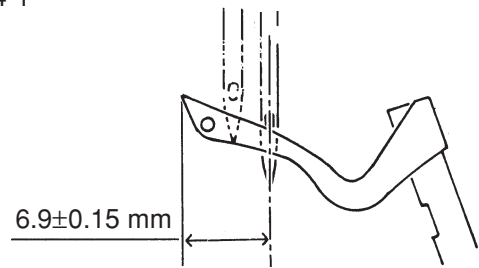
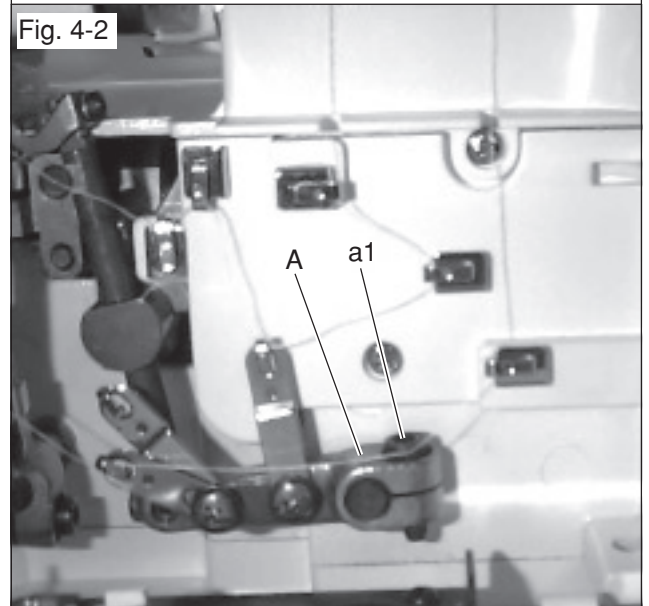


Fig. 4-2



b) Timing of the upper looper

To check:

Turn the hand wheel towards you to raise the upper looper until the tip of upper looper is aligned with the bottom side of lower looper as shown on Fig. 4-3.

At this time, the backside of lower looper eye should be positioned with the tip of upper looper as shown on Fig. 4-4.

Fig. 4-3

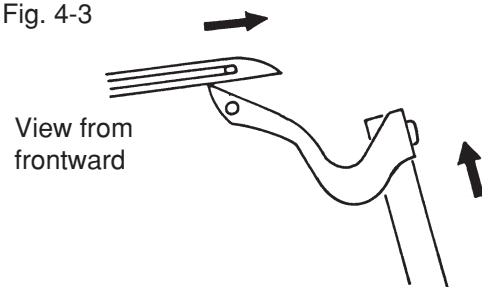
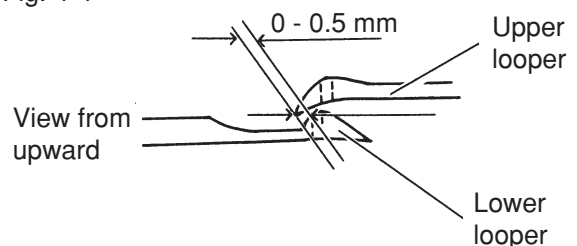


Fig. 4-4



To adjust:

The timing of the upper looper is determined by the positioning of the Upper looper eccentric cam. The temporary tuning is described in section 2 "POSITIONING OF THE ECCENTRIC CAMS".

For fine tuning, adjust as follows:

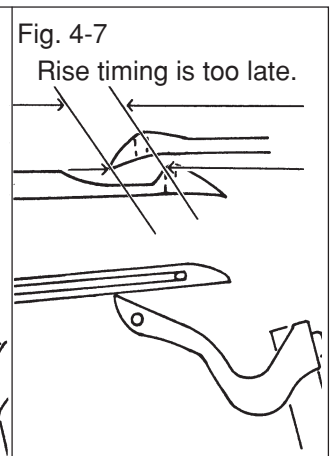
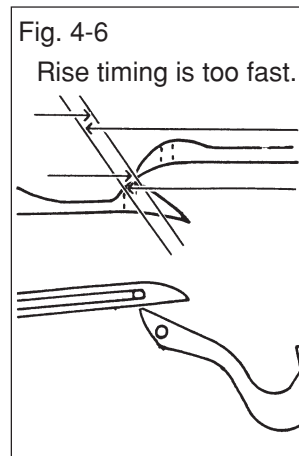
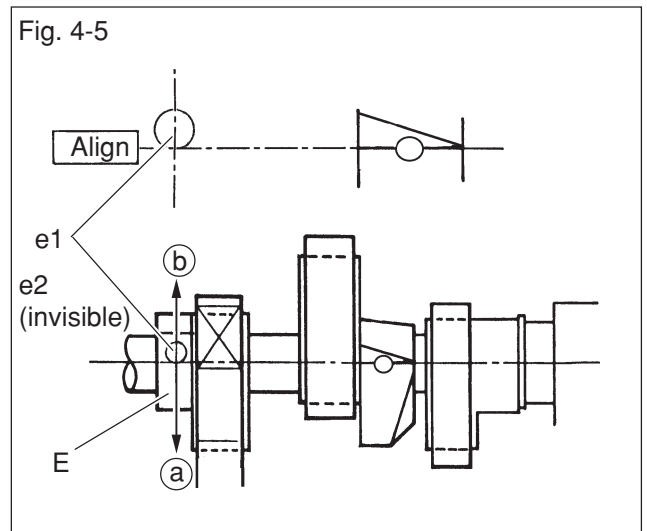
Tilt the machine backward and remove the base. (Fig. 4-5)

First, loosen the screw (e2) on the Upper looper eccentric cam and turn the hand wheel towards you until the screw (e1) is visible.

- If the rise timing of the upper looper is too fast as shown on Fig. 4-6, loosen the screw (e1) and turn the cam (E) slightly toward you (= direction (a) on Fig. 4-5)

- If the rise timing of the upper looper is too late as shown on Fig. 4-7, loosen the screw (e1) and turn the cam (E) slightly toward back (= direction (b) on Fig. 4-5)

Retighten the screws (e1, e2) when correct position is obtained.



c) Installing the upper looper

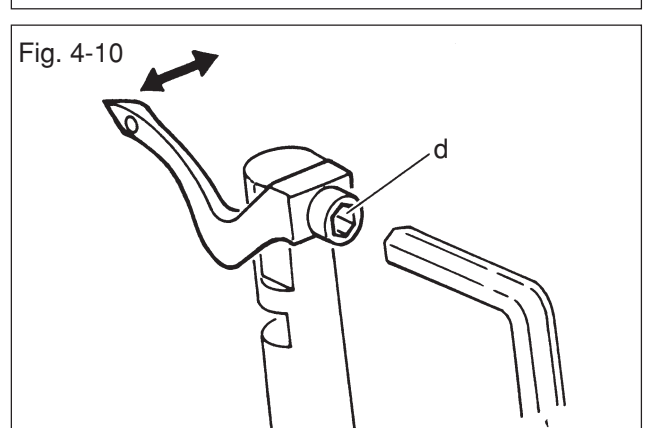
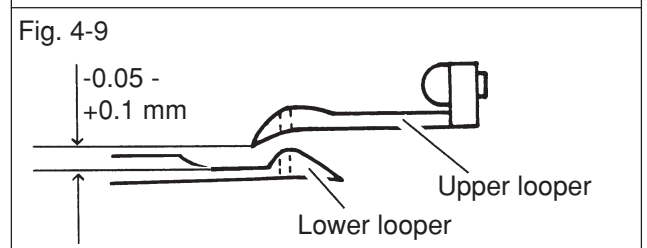
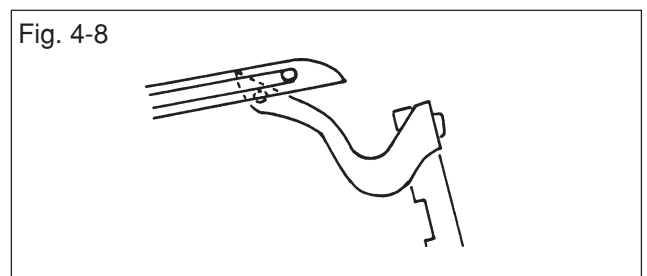
To check:

Turn the hand wheel towards you to raise the upper looper until the tip of the looper is aligned with the top side of the lower looper as shown on Fig. 4-8.

At which time, the opening between the tip of upper looper and backside of lower looper should be as shown on Fig. 4-9.

To adjust:

Loosen the screw (d) on the upper looper and adjust to correct position. (Fig. 4-10)



5. POSITIONING OF THE THREAD TAKE-UP LEVER

a) Needle thread take-up lever

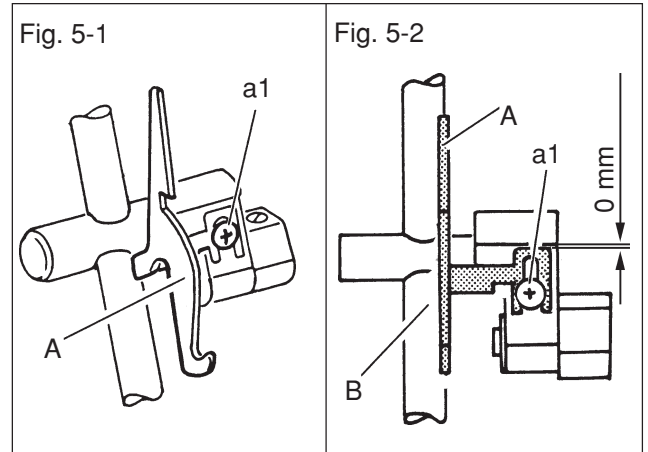
To check:

Remove the face plate.

The needle thread take-up lever (A) should be attached to the needle bar link as shown on Fig. 5-2. And the thread take-up lever should be aligned with the right side of the needle bar (B).

To adjust:

Loosen the screw (a1) and move lever to obtain correct position. (Fig. 5-1)



b) Upper looper thread take-up lever

To check:

The upper looper thread take-up lever (C) should be positioned as shown on Fig. 5-3.

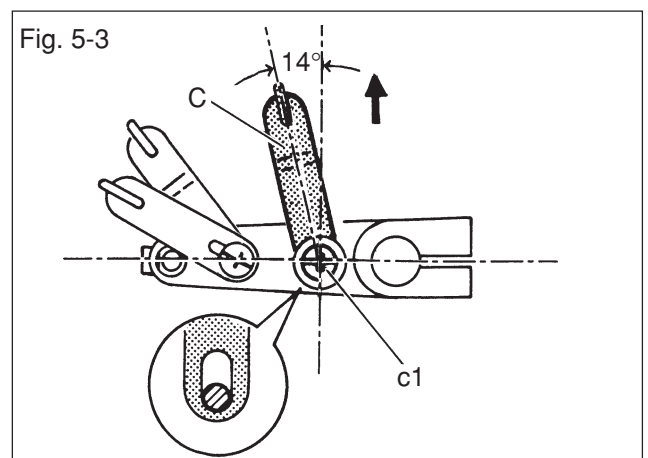
To adjust:

Loosen the screw (c1). Pulling up the lever (C) as far as it will go and adjust the lever to obtain correct degree.

Note:

The positioning of upper looper thread take-up lever will determine the amount of thread taken-up.

The wider the angle is, the more amount of thread is taken-up. It may be necessary to fine tune adjustment of the thread take-up lever after sewing a few stitches.



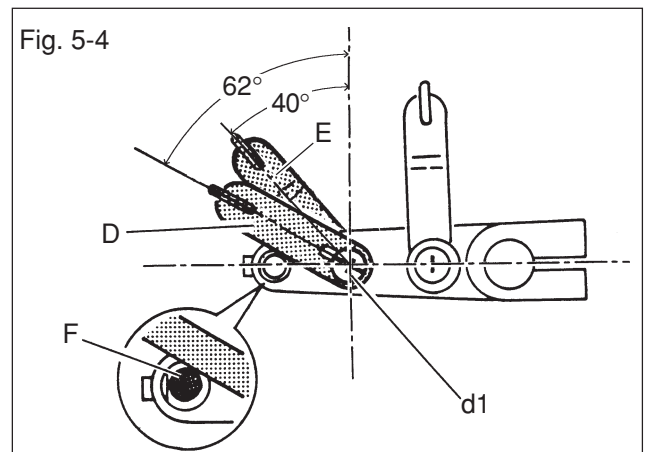
c) Lower looper thread take-up levers

To check:

The lower looper thread take-up lever (D) and (E) should be positioned as shown on Fig. 5-4. (The bottom line of lever (D) is circumscribing on the hole of base shaft connecting pin(F).)

To adjust:

Loosen the screw (d1). Pulling up the lever (D) and (E) as far as it will go and adjust the lever to obtain correct degree.



6. FEED

The needle bar must be properly adjusted prior to attempting to adjust the feed. (See section 1)
Make these adjustments in sequence of a) to e).

a-1) Height of the Main feed dog

To check:

Set the stitch length dial to 1 and turn the hand wheel until the feed dogs raised to its highest position.

The front portion of the Main feed dog (A) should come up 1.0 (+0, -0.2) mm over the surface of throat plate as shown on Fig. 6-1.

To adjust:

Tilt the machine backward and remove the base. (Fig. 6-2) Loosen the screw (b1) on the main feed dog base. (This screw is tightening the feed rock cam follower eccentric pin (c).)

Open the extension table and turn the feed rock cam follower eccentric pin (c) right or left until the correct height is obtained. (Fig. 6-3) Tighten the screw (b1).

a-2) Height of the Sub feed dog

To check:

Set the stitch length dial to 1 and set the differential feed dial to "N". Turn the hand wheel until the feed dogs raised to its highest position. At this time, the height of the Sub feed dog (D) should be even with the Main feed dog (A). (+0.1 to -0 mm) (Fig. 6-1)

To adjust:

Set the stitch length dial to 4 and set the differential feed dial to "2". Turn the hand wheel until the needle bar comes to its lowest position. Place the adjusting gauge under the presser foot and lower the lifter. Open the extension table and remove the free arm cover.

Loosen the screw (d1) on the Sub feed dog (D) and lower the Sub feed dog (D) to the direction (1). (Fig. 6-4)

Turn the hand wheel towards you until the teeth of **Main** feed dog (A) touch the surface of adjusting gauge. (= even with the surface of throat plate.) Bring up the Sub feed dog to the direction (2) until the all teeth of **Sub** feed dog (D) touch the surface of adjusting gauge and tighten the screw (d1).

b) Positioning of the feed dogs

To check:

Set the stitch length dial to 4 and set the differential feed dial to "2". Turn the hand wheel until the feed dogs come all the way forward.

Check that the openings between the each feed dog and throat plate should be as shown on Fig. 6-5.

Next, turn the hand wheel until the feed dogs come all the way backward and check the openings as shown on Fig 6-6.

Fig. 6-1

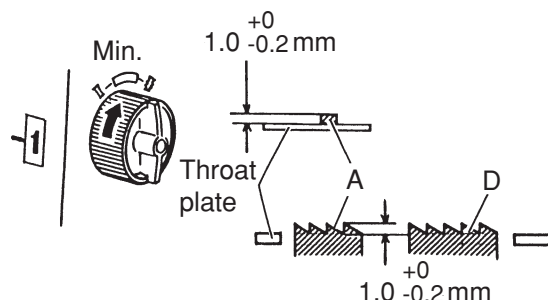


Fig. 6-2

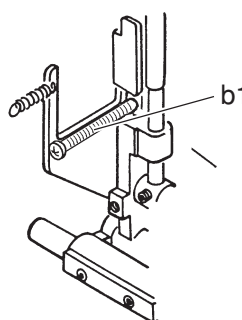


Fig. 6-3

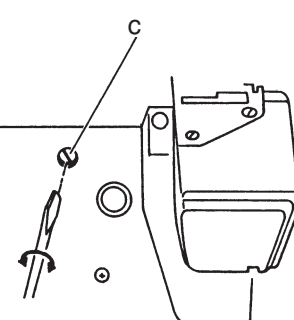


Fig. 6-4

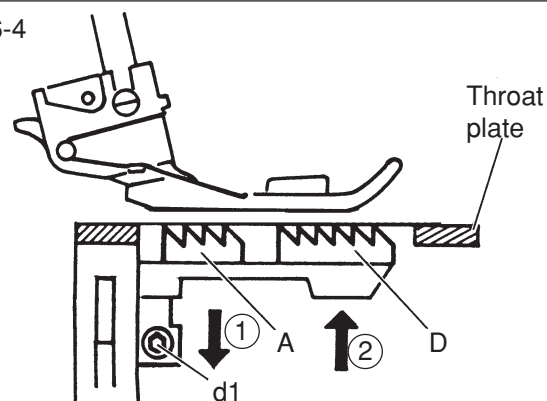


Fig. 6-5

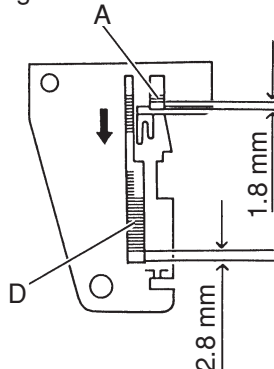
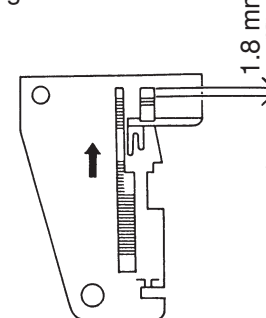


Fig 6-6



To adjust:

1. Main feed dog: (Fig. 6-7)

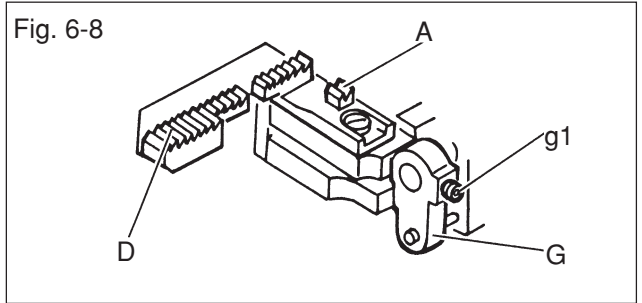
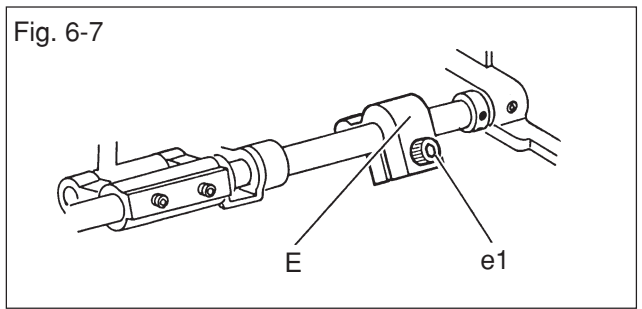
Tilt the machine backward and remove the base. Loosen the screw (e1) on the feed rock link arm (E). Move the Main feed dog to obtain correct positioning as shown on Fig. 6-5, 6-6. Retighten the screw (e1).

2. Sub feed dog: (Fig. 6-8)

Loosen the screw (g1) on the side of the sub feed dog base (G). Slide the base (G) front or backward to obtain correct position. Retighten the screw (g1).

Note:

If you have adjusted the Main feed dog, you should recheck the positioning of the sub feed dog.



c) Timing of the feed

To check:

Set the stitch length dial to 4.

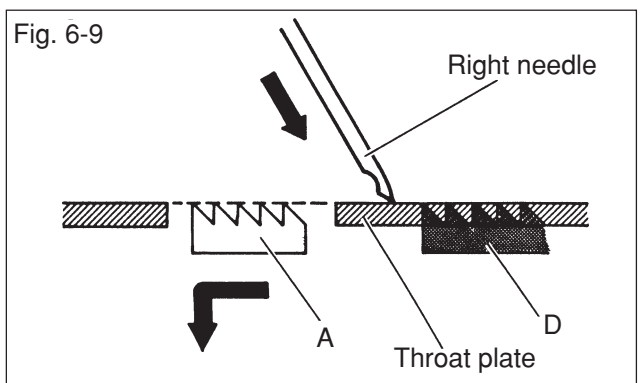
Turn the hand wheel towards you until the point of right needle is even with the throat plate surface from its highest position. (Fig. 6-9)

At which time, the feed dogs should be positioned its extreme rear and level with the surface of throat plate.

To adjust:

The timing of feed is determined by the positioning of Slide block eccentric cam (up or downwards of feed dogs) and Feed rock eccentric cam (front or backward of feed dogs).

See the section 2 "POSITIONING OF THE ECCENTRIC CAMS" and adjust these cams. (and the Needle bar eccentric cam.)



d) Adjusting the stitch length

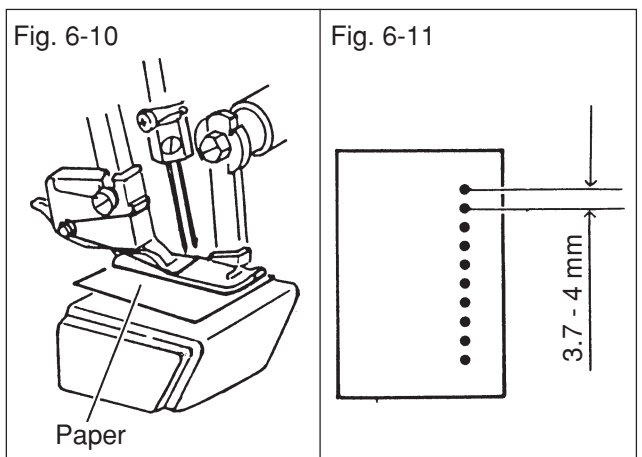
To check:

Set the stitch length dial to 4 and set the differential feed dial to "N".

Place a piece of paper under the presser foot and lower the foot.

Turn the hand wheel towards you with your hand and open several holes into the paper. (Fig. 6-10)

The space between holes should be 3.7 to 4.0 mm as shown on Fig. 6-11.



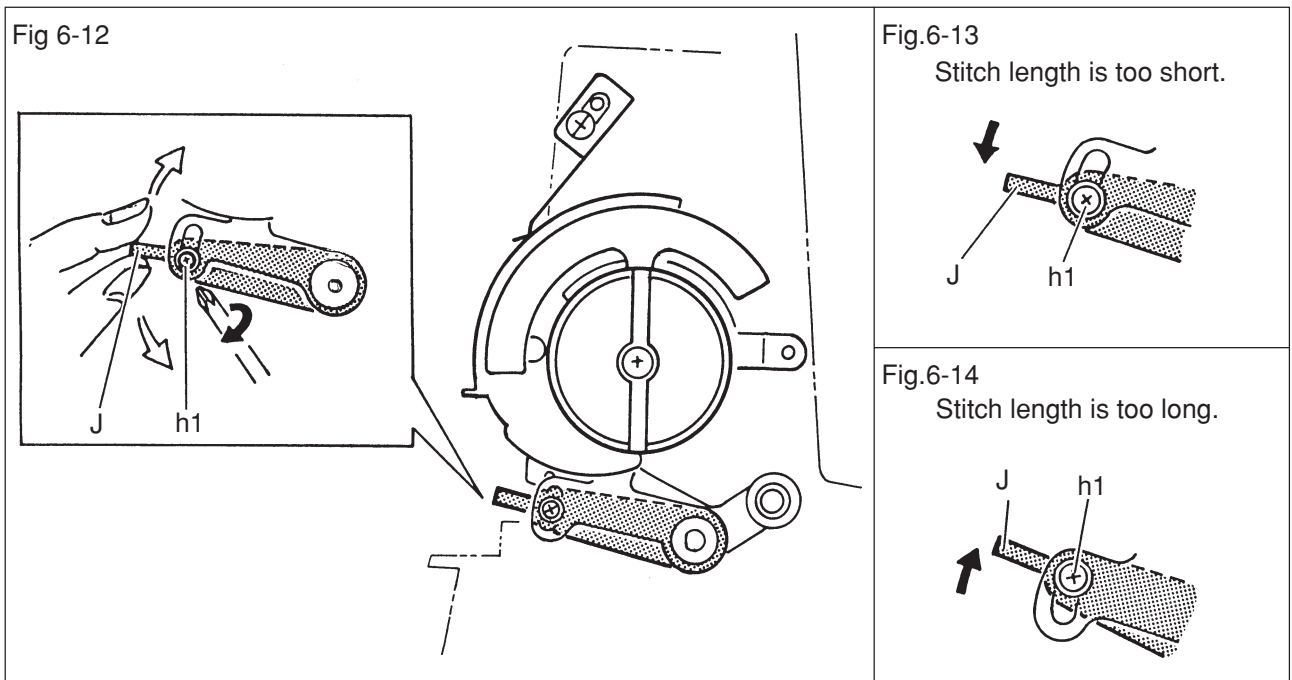
To adjust:

Remove the belt cover. (Fig 6-12)

If the stitch length is too short, loosen the screw (h1) and move the lever (J) slightly downward. (Fig.6-13)

If the stitch length is too long, loosen the screw (h1) and move the lever (J) slightly upward. (Fig.6-14)

When the adjustments has been completed, retighten the screw (h1).



e) Adjusting the length of differential feed

To check:

Set the stitch length dial to 4 and set the differential feed dial to "2".

Check that the front-back movement of the rear end of sub feed dog (D) is 6.9 (+0, -0.2) mm as shown on Fig. 6-15.

To adjust:

Remove the belt cover. Loosen the screw (k1) on the sub feed pulley (K). (Fig. 6-16)

- When the movement is too short, hold the pulley (K) and turn the sub feed regulating plate (L) downward (= direction (1))

- When the movement is too long, hold the pulley (K) and turn the sub feed regulating plate (L) upward (= direction (2))

Recheck the length of movement and tighten the screw (k1).

Fig. 6-15

Adjusting gauge

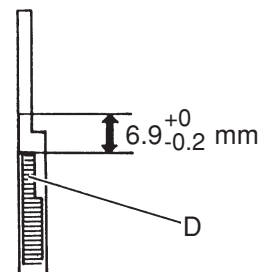
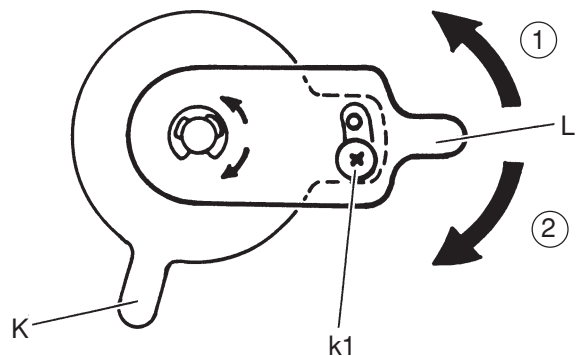


Fig. 6-16



7. KNIVES

a) Angle of the upper knife

To check:

Open the front cover. Open the extension table and remove the free arm cover.

Set the seam width to 3.5 (1-needle type) or 4.0 (2-needle type) mm .

Turn the hand wheel towards you until the upper knife is in its lowest position. At which time, the upper knife should be on right angle with the throat plate approximately. (Fig. 7-1)

Also at this time, the opening between the left side of upper knife base collar (A) and the right side of upper knife arm (B) should be 1.5 mm as shown on Fig. 7-2.

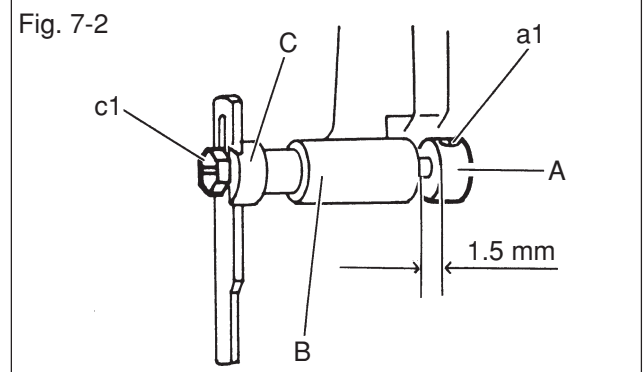
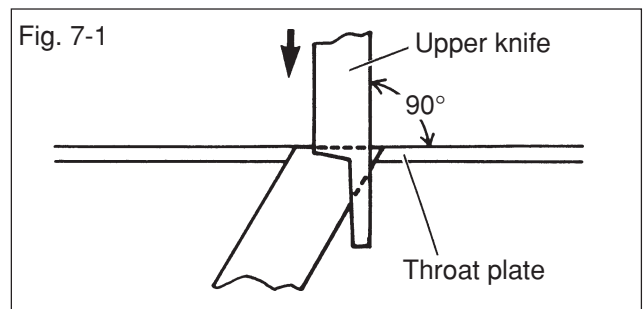
To adjust:

Loosen the screw (a1) on the collar (A).

Turn the upper knife to correct angle as shown on Fig. 7-1.

Adjust the positioning of the collar (A) to obtain correct opening as shown on Fig. 7-2.

Tighten the screw (a1) when you have made the proper adjustments.



b) Positioning of the upper knife

The angle of upper knife must be correctly before attempting to this adjustment.

To check:

Turn the hand wheel towards you until the upper knife comes to its lowest position.

At this time, the front corner of the cutting edge should be coming under the throat plate surface 0.5 to 1.0 mm as shown on Fig. 7-3.

And also the front and rear edge of the upper knife should be positioned as shown on Fig. 7-3.

To adjust:

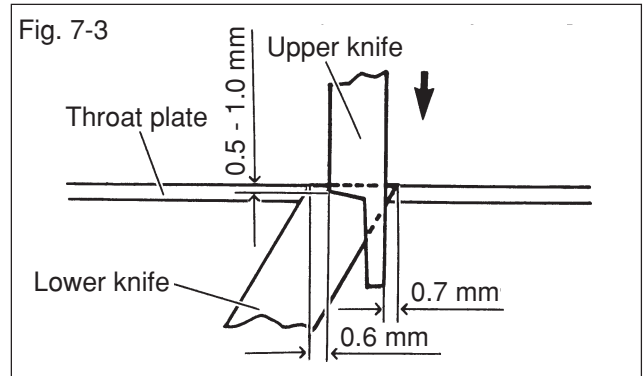
Loosen the screw (c1) on the upper knife base (C). (Fig. 7-2) and adjust the upper knife to obtain correct position.

To exchange the upper knife:

Remove the screw (c1) and exchange the upper knife. Adjust the new knife to obtain correct position.

Note:

Refer to instruction manual for exchanging and adjustments of the lower knife.



c) Opening between upper knife arm and frame

To check:

Set the upper knife to no cutting position. (Refer to instruction manual.)

Move the upper knife arm (B) sideways to see that there is no play. (Fig. 7-4)

To adjust:

To make an opening between the upper knife arm (B) and the upper knife driving crank (D), loosen the screw (e1) on the frame (E) and slide crank (D) to the right.

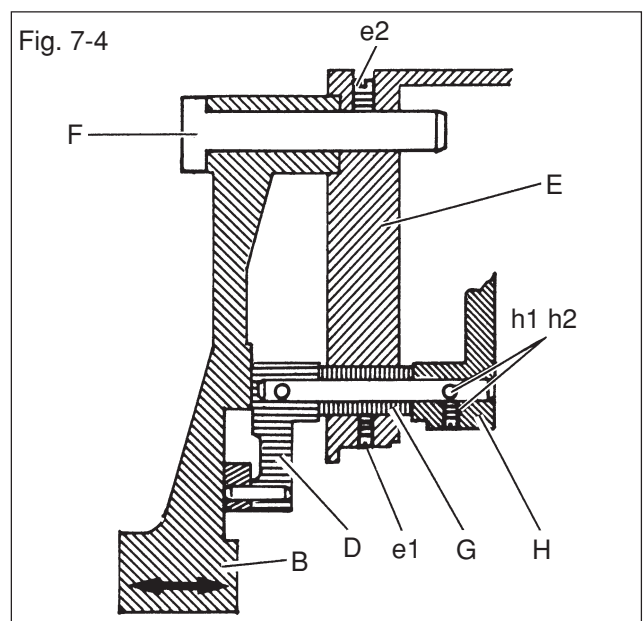
Loosen the screw (e2) on backside of frame.

Hold the upper knife arm shaft (F) and arm (B) and frame (E) tightly so that there are no opening between these parts. Then tighten the screw (e2). Make sure that there are no opening between crank (D), upper knife driving shaft bush (G) and driving fork rod (H).

If there are any opening, loosen the 2 screws (h1, h2) on the rod (H). Hold crank (D), bush (G) and rod (H) together and retighten the screws (h1, h2).

Next, hold the arm (B) and crank (D) together so that there are no opening and tighten the screw (e1).

Turn the hand wheel towards you so check whether the torque and functions smoothly.



8. PRESSER FOOT

a) Height and direction of the presser foot

To check:

Turn the hand wheel until the feed dog is lower than the surface of throat plate.

Raise the presser foot lifter. At this time, the rear side of presser foot should be above the surface of throat plate as shown on Fig. 8-1

Next, lower the presser foot lifter and check that the presser foot is facing in the right direction. (Fig. 8-2)

To adjust:

Remove the light cover and face plate.

Attach the presser bar bush and raise the presser foot lifter.

Loosen the screw (a1) on the presser bar clamp (A) and adjust the height and direction correctly. (Fig. 8-3)

Retighten the screw (a1) securely.

Fig. 8-1

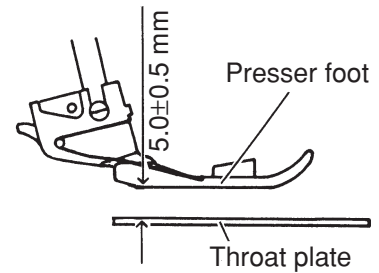


Fig. 8-2

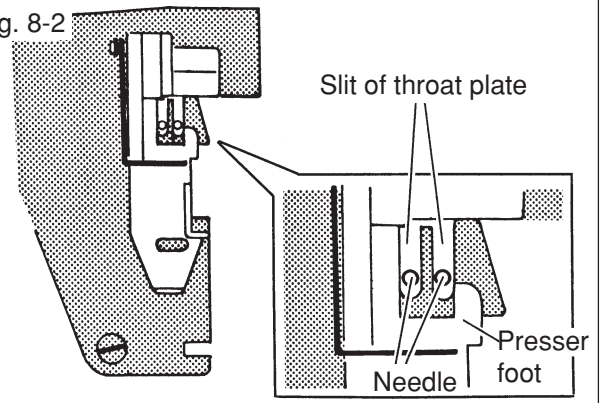
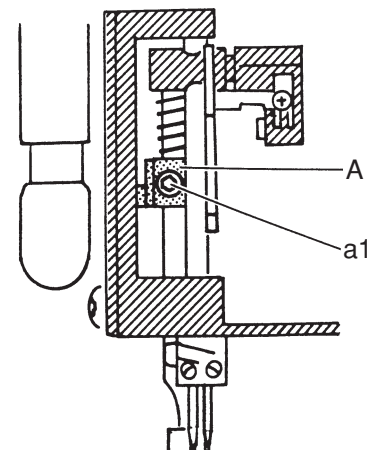


Fig. 8-3



9. MOTOR

a) Belt tension

To check:

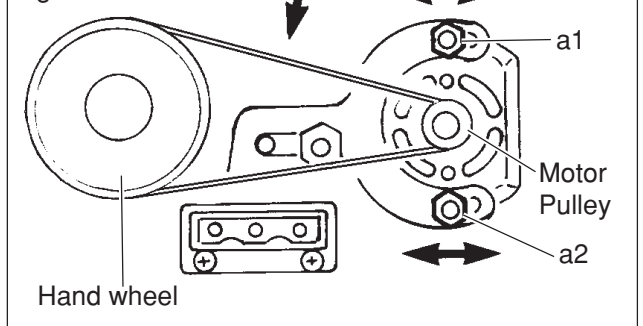
Remove the belt cover.

Push the belt between hand wheel and motor pulley with your forefinger. (Fig. 9-1) A slight slack on the belt would be the adequate amount of tension.

To adjust:

Loosen the motor nuts (a1, a2) and move motor sideways to adjust the belt tension.

Fig. 9-1



10. HAND WHEEL

a) Opening between the hand wheel and frame

To check:

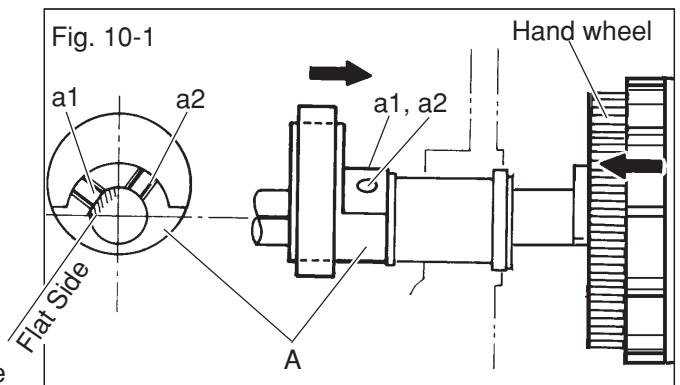
Move the hand wheel sideways to check for any play.

To adjust:

Tilt the machine backward and remove the base. (Fig. 10-1)

Loosen the screw (a1, a2) on the Feed rock eccentric cam (A).

Push the hand wheel to the left (frame side) while pushing the cam (A) towards the right and re-tighten the screws (a1, a2).



11. BALANCE WEIGHT

a) Hand wheel shaft balance weight

To check:

Tilt the machine backward and remove the base and belt cover.

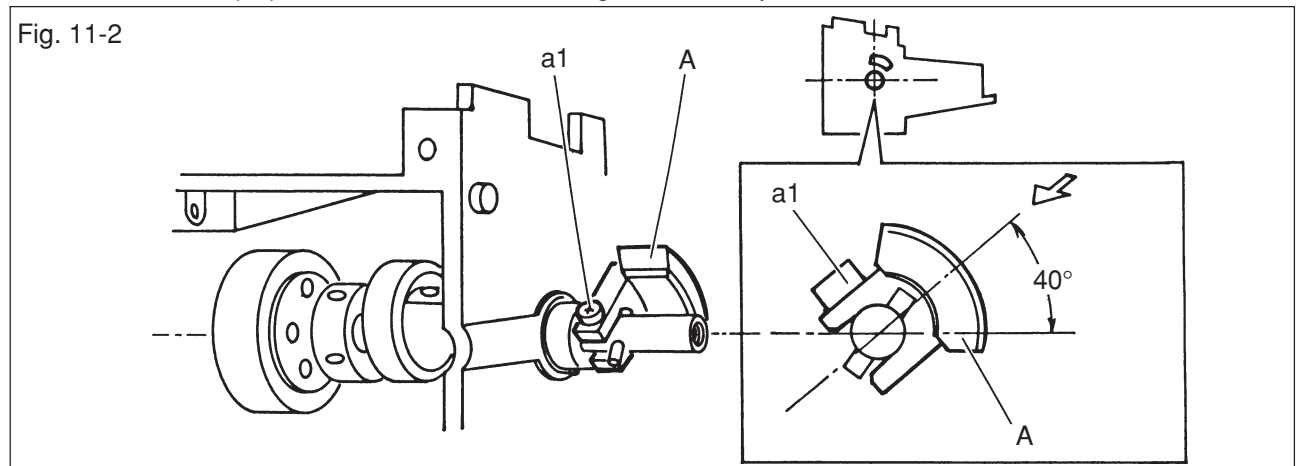
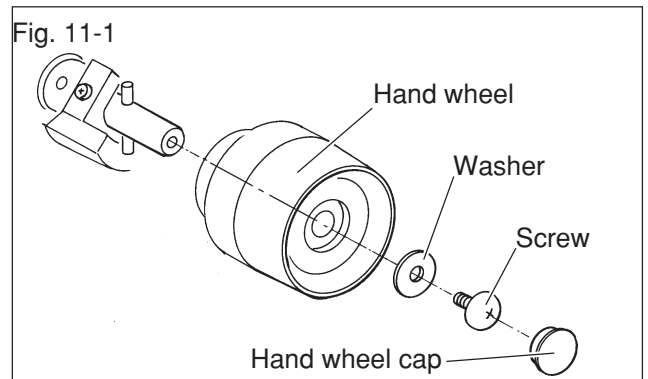
Raise the needle bar to its highest position by turning the hand wheel towards you.

Remove the hand wheel cap, screw, washer and hand wheel. (Fig. 11-1)

The balance weight (A) should be positioned as shown on Fig. 11-2.

To adjust:

Loosen the bolt (a1) and move the balance weight to correct position.



b) Lower looper balance weight

To check:

Tilt the machine backward and remove the base. (Fig. 11-3)

The screws (b1, b2) on the Lower looper rod arm and the screws (c1, c2) on the Lower looper balance weight (C) should be aligned.

To adjust:

Loosen the screws (c1, c2) and adjust the correct position.

At this time, keep the opening between the balance weight (C) and collar (D).

